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INFORMATION REPORT

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COUNTRY USSR

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SUBJECT Comments and Evaluation of USSR Text Book on  
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Title Theory and Methods of Investigating the Corrosion of Metals.  
Author G.V. Akimov  
Published by Izdatel'stvo Akademii Nauk SSSR (1945) 414 pp

## 1. This book is divided into three parts:

- a. Six chapters and 219 pages devoted to the theory of corrosion. According to Akimov, the presentation is "popular" and not intended for the specialist in electrochemistry but rather for the "corrosion practitioner". Akimov states he is emphasizing electrochemical corrosion more than chemical corrosion because of his personal interest in the former and because of the excellent coverage of the latter in Evans' book, which is available in Russian. Considerable space is given to a discussion of the interaction of various components of heterogeneous alloys. Akimov also stresses the fact that the thermodynamic possibility of a reaction is not nearly so important in corrosion work as the kinetics, that is, the rate of corrosion.

- b. Four chapters and 159 pages on test methods.

- c. Twenty-one general tables pertinent to corrosion testing.

## 2. A first-rate book.

- a. The portion of the book on testing is clearly and simply written; it should be comprehensible to any technician. Even someone who had never done any corrosion testing should be able, with the aid of this book, to make acceptable corrosion tests of all kinds from quick qualitative tests to highly accurate quantitative tests in addition to field and service tests.
- b. On the other hand, the theoretical part of the book seems to be some-

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2.

what too highbrow and complicated for some of the intended readers. Akimov states the book is meant especially for technicians and others working in industrial laboratories; the only requisite is the elementary knowledge of physics and chemistry obtained in the usual course in "higher technical schools". The extensive use of equations would probably intimidate someone with this training in the USA, although most Soviet books and authors seem to have a predilection for mathematics.

3. The most obvious comparison is, of course, with The Corrosion Handbook, edited by H.H. Uhlig and sponsored by The Electrochemical Society. In all fairness to Akimov, it should be mentioned that The Corrosion Handbook is far larger (1188 pages) and that the individual chapters were contributed by over 100 experts. The first part of Akimov's book (on theory) is considerably longer and more detailed than any discussion of theory in The Corrosion Handbook. The second part of Akimov's book (on testing methods) and the general tables are roughly comparable to the equivalent sections of The Corrosion Handbook. The Corrosion Handbook, however, gives much specific data on the corrosion resistance of many types of metals and alloys in all possible corrosive mediums. Akimov makes no attempt to give this kind of information. Akimov's book is therefore suitable for the man making corrosion tests but not for the engineer or designer wanting to know what material to use for a particular application.
4. In the foreword, Akimov specifically states he is not giving a complete bibliography but only a few of the more important references. At the end of each chapter there is a limited list of such references, which does not always include authors to whom he has credited certain figures in the chapter. At the start of the book, he also includes a list of recommended books and magazines dealing with corrosion.
  - a. Because of this approach it is difficult to give a specific figure for the number of non-Soviet publications. Well over half, however, are in this category. For example, of the lists at the ends of the chapters, about two-thirds have non-Soviet authors. Furthermore, of the recommended magazines on corrosion, only three are Russian as opposed to six English, three German and two French.
  - b. Rather noteworthy is the sizeable number of Russian translations of non-Russian works in this field.
5. The treatment given to non-Soviet authors is more than fair. Not only is Akimov lavish in his praise of U.R. Evans, but many non-Soviet authors are mentioned favorably by name in the text and are given credit for figures taken from their publications. Finally, the only picture of a person included in the book is of a Swiss, one of the pioneer workers in this field.
6. While the reproduction of the few photographs used is poor, the balance of the 373 figures are admirably clear line drawings. There are a number of noticeable typographical errors but mainly in connection with foreign names and words that have not been transliterated.
7. A point of interest is the "unfortunate" lack in the USSR of any network of stations for testing the corrosion resistance of various materials to different atmospheres, waters and soils. After a detailed description of such stations in the British Empire and the USA, Akimov mentions the need for such work in the USSR.

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